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<table>
<tr><td rowspan="8">APPELLANT'S BRIEF

Address to:
Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450</td><td>Application No.</td><td>10/633,609</td></tr>
<tr><td>Confirmation No.</td><td>5153</td></tr>
<tr><td>Attorney Docket No.</td><td>10021296-1</td></tr>
<tr><td>Filing Date</td><td>July 31, 2003</td></tr>
<tr><td>First Named Inventor</td><td>BRUHN, LAURAKAY</td></tr>
<tr><td>Examiner</td><td>LIN, JERRY</td></tr>
<tr><td>Group Art</td><td>1631</td></tr>
<tr><td colspan="2">Title: " MASKING CHEMICAL ARRAYS "</td></tr>
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Sir:

This Brief is filed in support of the Appellant's appeal of the rejections set forth in the Final Office Action dated March 19, 2008. A Notice of Appeal was filed on June 30, 2008. As such, this Appeal Brief is timely filed.

The Board of Patent Appeals and Interferences has jurisdiction over this appeal pursuant to 35 U.S.C. § 134(a).

The Commissioner is hereby authorized to charge deposit account number 50-1078, order number 10021296-1, to cover any required fee for filing the Appellant's brief. Additionally, in the event that the fee transmittal or other papers are separated from this document and/or other fees or relief are required, the Appellant petitions for such relief, including extensions of time, and authorize the Commissioner to charge any fees under 37 C.F.R. §§ 1.16, 1.17 and 1.21 which may be required by this paper, or to credit any overpayment, to the above disclosed deposit account.

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REAL PARTY IN INTEREST

The inventors named on this patent application assigned their entire rights to the invention to Agilent Technologies, Inc.

RELATED APPEALS AND INTERFERENCES

There are currently no other appeals or interferences known to the Appellant, the undersigned Appellant's representative, or the assignee to whom the inventor assigned his rights in the instant case, which would directly affect or be directly affected by, or have a bearing on the Board's decision in the instant appeal.

STATUS OF CLAIMS

The present application was filed July 31, 2003 with Claims 1 to 63. During the course of prosecution, Claims 1-13, 17-19, 34 and 59-62 were amended; Claims 14-16, 20-33, 35-37, 43-48, 51-53 and 58 were withdrawn; Claims 38-42, 54, and 55 were canceled; and Claims 64-70 were added. Accordingly, Claims 1-13, 17-19, 34, 49, 50, 56, 57, and 59-70 are pending and under examination in the present application, all of which stand rejected. As the claims have been twice rejected by the Office, the Appellants hereby Appeal the case to the Board of Patent Appeals and Interferences pursuant to 35 U.S.C. § 134(a). All of the rejected claims are appealed herein.

STATUS OF AMENDMENTS

Subsequent to issuance of the Final Office Action dated March 19, 2008, no amendments to the claims were presented.

SUMMARY OF CLAIMED SUBJECT MATTER

The claimed invention is drawn to methods of using a chemical array unit having a chemical array with probes at multiple feature locations; apparatuses for use with a chemical array unit having the same chemical array; and computer program products executing the methods. The claimed method includes retrieving a sub-array pattern of the

chemical array from a memory using a test request. The test request references a type of test to be performed. The sub-array pattern comprises a plurality of locations of features that make up the sub-array. The memory carries the sub-array pattern for the array that is retrievable with the test request.

A description of each independent claim involved in the appeal and each dependent claim argued separately follows below.

Independent Claim 1 recites a method, comprising receiving a test request which uses a sub-array of a chemical array with probes at multiple feature locations (pg. 7, lines 9-16), wherein said sub-array comprises less than all of said multiple feature locations of said chemical array (pg. 9, lines 4-12), and wherein said test request references a type of test to be performed (pg. 9, lines 13-21); retrieving a pattern of locations of features that make up the sub-array from a memory using the test request, which memory carries said pattern for the sub-array (pg. 2, line 28 to pg. 3, line 2 and pg. 9, line 21 to pg. 10, line 2); exposing said array to a sample (pg. 19, line 9 to page 20, line 14 and pg. 25, line 22 to pg. 27, line 2); and reading said sub-array (pg. 10, line 12 to pg. 11, line 3 and pg. 25, line 5 to pg. 27, line 2).

Claim 3 recites the method according to claim 1 additionally comprising reading an array identifier associated with the chemical array unit, and wherein the sub-array pattern is retrieved from the memory using both the array identifier and the test request, which memory carries multiple sub-array patterns for each of multiple arrays each sub-array pattern retrievable with a different combination of array identifier and test request (pg. 7, line 19 to pg. 8, line 2 and pg. 10, lines 12-17).

Claim 4 recites the method according to claim 3 wherein the array unit carries the array identifier (pg. 7, lines 19-21).

Claim 8 recites the method according to claim 7 wherein the array unit carries an array identifier and the test request is associated with the array identifier (pg. 7, lines 19-25).

Claim 9 recites the method according to claim 6 additionally comprising: reading an array identifier associated with the chemical array unit (pg. 10, lines 12-17), and wherein

the sub-array pattern is retrieved from the memory using both the array identifier and test request, which memory carries multiple sub-array patterns for the array each retrievable with a different combination of array identifier and test request (pg. 7, line 19 to pg. 8, line 2 and pg. 10, lines 12-17).

Claim 10 recites the method according to claim 9 wherein the array identifier and test request are associated with the array (pg. 7, lines 19-25).

Claim 11 recites the method according to claim 7 wherein: multiple requests for tests associated with the array are read, each of which uses a different sub-array of the array; patterns of the sub-arrays are retrieved from memory using both the array identifier and the test requests, which memory carries multiple sub-array patterns each retrievable with a different combination of array identifier and test request (pg. 11, lines 4-9).

Claim 13 recites the method according to claim 12 wherein the method further comprises rendering feature locations outside any retrieved sub-array pattern incapable of providing signal data representative of binding of a sample component (pg. 11, lines 10-30 and pg. 19, line 9 to pg. 20, line 14).

Claim 17 recites the method according to claim 13 wherein the rendering step comprises damaging probes at the feature locations outside any retrieved sub-array pattern (pg. 11, lines 24-30 and pg. 20, lines 1-3).

Claim 18 recites the method according to claim 17 wherein the damaging comprises cross-linking the probes at the feature locations outside any retrieved sub-array (pg. 11, lines 24-30 and pg. 20, lines 1-3).

Claim 19 recites the method according to claim 17 wherein the damaging comprises cleaving the probes from the feature locations outside any retrieved sub-array (pg. 11, lines 24-30 and pg. 20, lines 1-3).

Claim 49 recites an apparatus for use with a chemical array unit having a chemical array with probes at multiple feature locations (pg. 3, lines 18-19), comprising an interrogating source; a detector to detect signal generated in response to the interrogating source; and a processor which causes the apparatus (pg. 14, lines 12-24) to execute a method of claim 1 (pg. 3, lines 18-19).

Claim 50 recites an apparatus for use with a chemical array unit having a chemical array with probes at multiple feature locations (pg. 3, lines 18-19), comprising a light source to illuminate array feature locations with an interrogating light, which light source may or may not be the same as the light source of a deactivator; a detector to detect light emitted in response to the interrogating light; and a processor (pg. 14, lines 12-24) which causes the apparatus to execute a method of claim 2 (pg. 3, lines 18-19).

Claim 56 recites a computer program product comprising a computer readable medium carrying a computer program which when loaded into a computer executes a method of claim 1 (pg. 3, lines 18-19).

Claim 57 recites a computer program product comprising a computer readable medium carrying a computer program which when loaded into a computer executes a method of claim 6 (pg. 3, lines 18-19).

Independent Claim 59 recites a method comprising retrieving a sub-array pattern of a chemical array from a memory using a test request (pg. 7, lines 9-16), wherein said test request references a type of test to be performed (pg. 9, lines 13-21), which sub-array pattern comprises a plurality of locations of features that make up said sub-array (pg. 9, lines 4-12) and said memory carries said sub-array pattern for the array which is retrievable with said test request (pg. 2, line 28 to pg. 3, line 2 and pg. 9, line 21 to pg. 10, line).

Claim 61 recites the method according to claim 59 wherein the sub-array pattern is retrieved from the memory using both an array identifier and the test request, which memory carries multiple sub-array patterns for each of multiple arrays, each pattern retrievable with a different combination of array identifier and test request (pg. 7, line 19 to pg. 8, line 2 and pg. 10, lines 12-17).

Claim 62 recites the method according to claim 61 wherein the array identifier and test request are received from a location remote from the location of the memory, and the retrieved pattern of less than all the array feature locations is communicated to the remote location (pg. 14, lines 2-5).

Claim 63 recites a computer program product comprising a computer readable medium carrying a computer program which when loaded into a computer executes a

method of claim 59 (pg. 3, lines 18-19).

Claim 69 recites the method according to Claim 68, wherein said more than one sub-array patterns overlap (pg. 9, lines 4-12).

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

I. Claims 1-13, 49, 50, 56, 57, 59-63 and 65-70 were rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Kaushikkar (US 2002/0024026).[1]

II. Claims 17-19 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kaushikkar (US 2002/0024026) in view of Podyminogin et al., (Nucleic Acids Research 29(24):5090-5098).

III. Claims 34 and 64 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Kaushikkar (US 2002/0024026) in view of Sandstrom (US 2005/0079603).

ARGUMENT

I. Claims 1-13, 49, 50, 56, 57, 59-63 and 65-70 are not anticipated under 35 U.S.C. § 102(b) by Kaushikkar (US 2002/0024026).

In the arguments set forth below, Appellants will argue the rejected claims in groups as follows:

Group I: Claims 1, 2, 5-8, 12, 49, 50, 56, 57, 59, 60, 63, 65-68 and 70;
Group II: Claims 3, 4, 9, 10, 11, 61 and 62;
Group III: Claim 13; and
Group IV: Claim 69.

1 Claims 66 and 67 appear to be inadvertently omitted in the introduction of the 102 rejection on page 2, ¶ 3, lines 1-2 of the Final Office Action dated March 19, 2008. Appellants note that the Examiner asserts that Kaushikkar teaches the elements of Claims 66 and 67 in the sentence bridging pages 3-4.

Group I: Claims 1, 2, 5-8, 12, 49, 50, 56, 57, 59, 60, 63, 65-68 and 70

Claims 1, 2, 5-8, 12, 49, 50, 56, 57, 59, 60, 63 and 65-68 are directed to methods, apparatuses and computer programs. The methods include the steps of retrieving a sub-array pattern of the chemical array from a memory using a test request and exposing the array to a sample. The test request references a type of test to be performed. The sub-array pattern comprises a plurality of locations of features that make up the sub-array. The memory carries the sub-array pattern for the array that is retrievable with the test request.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil of California*, 814 F.2d 628, 631, (Fed. Cir. 1987).

The standard for anticipation under section 102 is one of strict identity. An anticipation rejection requires a showing that each limitation of a claim be found in a single reference, *Atlas Powder Co. v. E.I. DuPont de Nemours & Co.*, 224 U.S.P.Q. 409, 411 (Fed. Cir. 1984). Further, an anticipatory reference must be enabling, see *Akzo N.V. v. United States Int'l Trade Comm'n* 808 F.2d 1471, 1479, 1 U.S.P.Q.2d 1241, 1245 (Fed. Cir. 1986), *cert denied*, 482 U.S. 909 (1987), so as to place one of ordinary skill in possession of the claimed invention. To anticipate a claim, a prior art reference must disclose every feature of the claimed invention, either explicitly or inherently. *Glaxo v. Novopharm, Ltd.* 334 U.S. P.Q.2d 1565 (Fed. Cir. 1995).

Appellants submit that Kaushikkar does not anticipate the claimed invention because the reference fails to teach each and every element of the rejected claims.

First, Kaushikkar does not teach a test request as recited in the claims.

An element of the claims of this group is retrieving a pattern of locations of features that make up a sub-array from a memory using a test request. The test request refers to a type of test to be performed.

In making this rejection, the Examiner asserts that Kaushikkar teaches receiving a

test request that uses a sub-array wherein the test request references a type of test to be performed. In particular, the Examiner asserts Kaushikkar's ¶ 0089 teaches that the test request references a type of test to be performed.

In order for convenient side-by-side comparison, Appellants reproduce ¶ 0089 of Kaushikkar and page 9, lines 13-21 of Appellants' specification below.

Kaushikkar's ¶ 0089:	Appellants' specification, page 9, lines 13-21
In connection with FIGS. 2 and 3A, it was noted above that user 201 may specify probe feature locations in a variety of ways (see corresponding illustrative method step 1110 in FIG. 11). These selections, as also noted, may be stored in computer 100A as an array content file (or other data structure) such as illustrative file 292 (see step 1120). GUI manager 810, in cooperation with GUI controller 715 noted above, receives user selections of file identifiers in an illustrative implementation from user 701 through GUI 782A as shown in FIG. 9 (see step 1130). GUI 782A includes a file tree window 910 in which user 701 may select from a list of csv files that, in this example, are array content files (such as file 292) identified by a .csv file extension. In particular, it is illustratively assumed that user 701 selects array content file 920 from expandable-collapsible csv node 915. Alternatively, user 701 may make this selection in accordance with any of a variety of other conventional techniques, such as selecting an item from a pull down list using graphical elements 930 and 932. GUI manager 810, in accordance with conventional techniques, thus provides to data retriever 820 user 701 "s specification of location data 812 for use in scanning a substrate specified, for example, in one or more of graphical elements 940A-F.	A "test request" references a type of test which it is desired be performed. The test type may be for testing a sample to ascertain whether it contains certain components quantitatively or qualitatively, such as nucleic acids or peptides or classes of the foregoing, or whether the sample or an organism from which it was derived exhibits a particular condition (for example, the activity of a gene or classes of genes, the presence of particular polymorphisms or class of polymorphisms, or a particular disease condition). A test request can be in any form such as human or machine readable and may or may not actually contain one or more details of the test type itself (for example, the test request may only be an indicator, such as alphanumeric code or other identification of a test type).

Kaushikkar's ¶ 0089 describes various ways for a user to specify probe feature locations – e.g., an array content file (or other data structure) as illustrated in FIGS. 3A and step 1120 of FIG. 11; and file identifiers as illustrated in FIG. 9 and step 1130 of FIG. 11. For better understanding of the paragraph, Appellants reproduce FIGS. 3A, 9 and 11 in the following paragraphs.

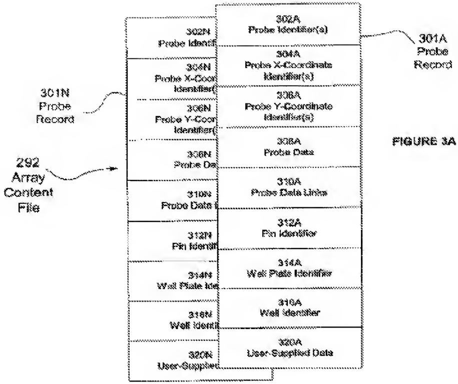
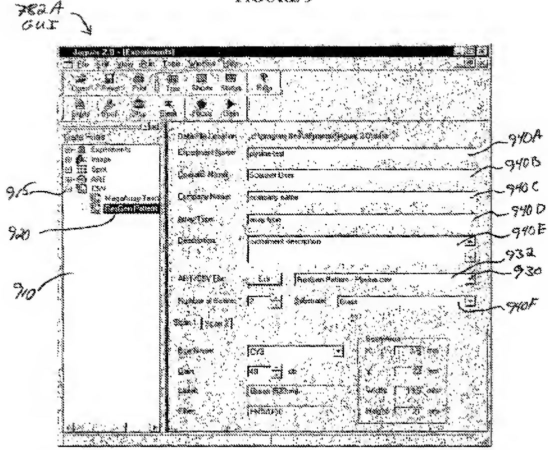


FIGURE 3A

The "array content file" (e.g., a csv file) stores probe location information. Pursuant to Kaushikkar's ¶ 0063, probe location information is shown as records 304 and 306 stored in array content file 292. Kaushikkar's FIG. 3A, shown above, illustrates the array content file as containing probe location information.

As described above in ¶ 0089, a user may select an array content file by browsing available specific csv files containing probe location information. FIG. 9 below illustrates file identifiers (GUI 782A) described in Kaushikkar as a second way to specify probe feature locations. The browsing can be carried out in a file tree format, as illustrated in FIG. 9, an expandable-collapsible csv node format, or a pull down list using graphical elements.

FIGURE 9



Kaushikkar's ¶ 0089 also describes step 1110 as specifying probe feature location, step 1120 as producing an array content file, and 1130 as receiving user selections of file identifiers in FIG. 11 (reproduced below for clarity). As shown in FIG. 11, Kaushikkar's method is providing users with array content files containing information regarding probe feature locations, and allows the users to select an array content file based on the probe feature locations.

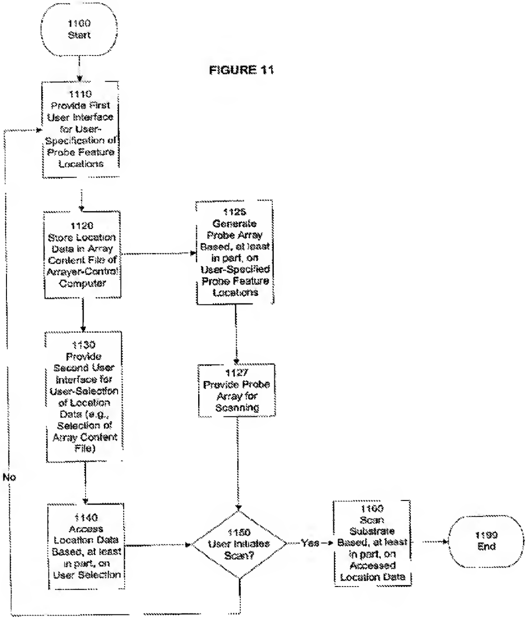


FIGURE 11

In light of the above, it is clear that the "test request" of Kaushikkar is specifically based on location data of the features of the array (i.e., providing information about the location of a subset of features on an array for sample contacting and scanning). Kaushikkar fails to teach a test request that references a type of test to be performed as claimed.

In the Advisory Action, the Examiner argues that because Kaushikkar's files for probe locations contain probes for nucleic acids/peptides, selecting a probe location file teaches selecting a nucleic acid/peptide based on the type of test to be performed. The relevant part of the Examiner's reasoning is reproduced below.

> The Examiner disagrees. According the specification at page 9, lines 13-21, a test type includes testing a sample for a particular nucleic acid or peptides. However, the probe locations taught by Kaushikkar contain probes (page 10, paragraph 0089) for nucleic acids or peptides. Thus, selecting one of the files by Kaushikkar determines what nucleic acids or peptides are to be tested in a sample. By selecting what nucleic acids or peptides are to be tested, Kaushikkar teaches selecting a particular test type. This

It appears to be the Examiner's position that, because probe location information contains information about target nucleic acids/peptides of the probe, retrieving a pattern of feature locations using probe location information is essentially the same as retrieving a pattern of feature locations using a test type to be performed. Appellants respectfully disagree.

The claimed element at issue is retrieving a pattern of feature locations from a memory using a test request that references a type of test to be performed. For example, a test request may reference testing a sample for the presence of a particular nucleic acid or peptide. As such, in the claimed method, a pattern of feature locations is identified by calling for specific tests of a sample for the presence of a particular nucleic acid or peptide. This claimed method is distinct from retrieving a pattern of feature locations using probe location information as disclosed in Kaushikkar. Indeed, even if a file of the probe location information includes information regarding target nucleic acids/peptides that bind a probe, Kaushikkar still does not teach selecting a sub-array by referencing the type of test to be performed. As such, the claimed invention is not taught by Kaushikkar's method.

Therefore, because Kaushikkar fails to teach each and every element of the claimed invention, the claims of Group I are not anticipated. The Appellants thus respectfully

request that this rejection be reversed.

Group II: Claims 3, 4, 8, 9, 10, 11, 61 and 62

Claims 3, 4, 9, 10, 11, 61 and 62 are drawn to the methods according to either Claim 1 or Claim 59 and thus include all the limitations of the claims of Group I. Therefore, Appellants submit that the claims of Group II are not anticipated by Kaushikkar for the reasons detailed above for the claims of Group I.

In addition, the claims of this group specify that the sub-array pattern is retrieved from memory using both an array identifier and a test request, each sub-array pattern being retrievable with a different combination of array identifier and test request.

Appellants submit that Kaushikkar additionally fails to teach this element of the claims of Group II and as such, the claims are further distinguished over Kaushikkar.

As to this specific element, the Examiner asserts that a bar code described in Kaushikkar's ¶ 0044 teaches an array identifier. See Final Office Action, page 3, lines 8-10. For convenience, Kaushikkar's ¶ 0044 is reproduced below.

> In some implementations, fluids to be spotted onto the microscope slides may be stored in and retrieved from well plates (also commonly referred to as microtiter plates) having, for example a standard number of 96 or 348 wells. The well plates loaded with fluids may, in some implementations, be inserted by a user into a carousel included in arrayer 120. Arrayer 120 may include a robotic system having an effector arm that, under computer control, may be instructed to retrieve a well plate from the carousel. Arrayer 120 may, in some implementations, be capable of automatically identifying well plates. For example, machine readable indicators, e.g., bar codes, may be attached to the well plates and a bar code reader may be attached to the robotic system for reading the bar codes. The robotic system pivots the retrieved well plate from the carousel to a well plate retainer on the platen. In other implementations, a user may manually place slides on the platen.

As is clear from above, the Appellants submit that Kaushikkar's bar code is not used to retrieve a sub-array in conjunction with a test request as claimed. Rather, the bar code of Kaushikkar is used to identify a well plate loaded with fluids that are employed in producing a spotted array. Producing a spotted array is a completely independent step from identifying a sub-array of an already produced array.

Accordingly, Appellants submit that Kaushikkar does not teach a combination of an array identifier and a test request to retrieve a sub-array as claimed. Therefore, for this additional reason, the Appellants contend that Kaushikkar does not anticipate the claims of this group. In view of the above, the reversal of this rejection is respectfully requested.

Group III: Claim 13

Claim 13 is drawn to the method according to Claim 12 and thus includes all the limitations of the claims of Group I. Therefore, Appellants submit that the claim of Group III is not anticipated by Kaushikkar for the reasons detailed above for the claims of Group I.

In addition, the claimed method of this group further includes the step of rendering feature locations outside any retrieved sub-array pattern incapable of providing signal data representative of binding of a sample component.

Appellants submit that Kaushikkar additionally fails to teach this element and, as such, the claim is further distinguished over Kaushikkar.

The Examiner asserts that this element is found in Kaushikkar because feature locations that are not scanned (e.g., that are outside of the scan area selected by a user) are rendered incapable of providing signal data due to lack of a radiation source that is focused on them. The Examiner cites ¶¶ 0016-17 of Kaushikkar, which teach controlled scanning of the accessed location data.

The Examiner appears to assert that the failure to scan a feature region is equivalent to rendering that feature region incapable of providing signal data.

Appellants submit that whether or not a feature location is scanned is immaterial, because the failure to scan a feature region is not equivalent to actively rendering them incapable of providing signal data as claimed. Indeed, Appellants submit that feature locations that are not scanned are still capable of providing signal data upon re-scanning. As such, the feature location that is not scanned is simply not equivalent to a feature location that has been rendered incapable of providing signal data. In the specification,

Appellants describe various ways of actively rendering feature locations incapable of providing signal data – e.g., having an excess of a label on those features (such as a fluorescent label linked to sample components); having a material which prevents reading of signal data representative of binding of a sample component (for example, dried salts, specific binding agents such as other oligonucleotides or antibodies, or other material which blocks or otherwise prevents reading of signal from a fluorescent label at a feature); activating heating elements at some of the feature locations; providing a deactivator (for example, a power supply for heating elements for each of multiple feature locations). See page 11, lines 16-20; and page 14, lines 19-24 of the Specification. Kaushikkar fails to teach these or any other way of rendering a feature location incapable of providing signal data.

Therefore, the Appellants contend that Kaushikkar does not anticipate the claim of this group. In view of the above, reversal of this rejection is respectfully requested.

Group IV: Claim 69

Claim 69 is drawn to the method according to Claim 68 and thus includes all the limitations of the claims of Group I. Therefore, Appellants submit that the claim of Group IV is not anticipated by Kaushikkar for the reasons detailed above for the claims of Group I.

In addition, the Claim 69 includes the element that the more than one sub-array patterns overlap.

Appellants submit that Kaushikkar additionally fails to teach this element and, as such, the claim is further distinguished over Kaushikkar.

The Examiner cites ¶ 0061 of Kaushikkar, which teaches that a subset of probes could be specified in relation to a reference coordinate on the substrate.

> In yet other non-limiting illustrative implementations, user 201 could specify various probe array patterns such as ones in which a probe array is replicated on a same substrate at a specified x and y distance from the original probe array, or in which the rows or columns of an original and replicate probe array are interleaved with each other. In such implementations, user 201 may hereafter be referred to as specifying one or more patterns of probe feature locations. Various combinations of each of the

preceding techniques, and/or others, may also be used.
¶ 0061 of Kaushikkar (only relevant part of the paragraph is shown).

The cited paragraph does not teach that the more than one subsets can overlap, as claimed. Rather, the paragraph teaches the opposite – i.e., that patterns could be replicated on the same substrate by interleaving the original and replicate probe array.

As such, Kaushikkar does not teach that the more than one sub-array patterns overlap. Therefore, the Appellants contend that Kaushikkar does not anticipate the claims of this group. In view of the above, the reversal of this rejection is respectfully requested.

<u>II. Claims 17-19 are not obvious under 35 U.S.C. § 103(a) over Kaushikkar (US 2002/0024026) in view of Podyminogin et al., (Nucleic Acids Research 29(24):5090-5098).</u>

In the arguments set forth below, Appellants will argue the rejected claims in groups as follows:

Group V: Claims 17 and 18; and

Group VI: Claim 19.

Group V: Claims 17 and 18

Claims 17 and 18 are directed to the method according to claim 13 wherein the rendering step comprises damaging probes at the feature locations outside any retrieved sub-array pattern.

In making this rejection, the Examiner asserts that Kaushikkar's system specifying scanning array area based on feature location data in combination with Podyminogin's disclosure of DNA damage renders the claims obvious.

In order to meet its burden in establishing a rejection under 35 U.S.C. §103, the Office must first demonstrate that a prior art reference, or references when combined, teach or suggest all claim elements. *See, e.g., KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1740 (2007); *Pharmastem Therapeutics v. Viacell et al.*, 491 F.3d 1342, 1360 (Fed.

Cir. 2007); MPEP § 2143(A)(1). In addition to demonstrating that all elements were known in the prior art, the Office must also articulate a reason for combining the elements. See, *e.g., KSR* at 1741; *Omegaflex, Inc. v. Parker-Hannifin Corp.*, 243 Fed. Appx. 592, 595-596 (Fed. Cir. 2007) citing *KSR*. Further, the Supreme Court in *KSR* also stated that that "a court *must* ask whether the improvement is more than the predictable use of prior art elements according to their established functions." *KSR* at 1740; emphasis added . As such, in addition to showing that all elements of a claim were known in the prior art and that one of skill had a reason to combine them, the Office must also provide evidence that the combination would be a predicted success.

Appellants submit that the combined teachings of Kaushikkar and Podyminogin fail to teach or suggest each and every element of the rejected claims.

First, Claims 17 and 18 are drawn to the method according to Claim 13 and thus include the elements of the claims of Groups I and III: 1) retrieving a sub-array using a test request that references a type of test to be performed; and 2) rendering feature locations incapable of providing signal data. Appellants submit that these elements are not taught by Kaushikkar for the reasons detailed above for the claims of Groups I and III.

Appellants submit that Kaushikkar fails to even suggest these elements. Kaushikkar fails to suggest retrieving a sub-array using a test request because the reference is mainly concerned with location data and is silent on modifying its array content file to one that references a type of test.

Kaushikkar also fails to suggest rendering feature locations incapable of providing signal data. Kaushikkar teaches retrieving data based on accessed location data (i.e., the location data input by the user) and "scanning ... based... on the accessed location data." As such, Kaushikkar at best teaches one not to scan areas that fall outside the identified area (i.e., the area identified using location data). There is simply no suggestion or motivation for one of skill in the art to actively render the features outside the sub-array area incapable of providing signal data as is claimed.

As Podyminogin is cited merely for its asserted teaching of damaging probes, it fails to remedy the above fundamental deficiencies in Kaushikkar.

Second, Appellants submit that the combination of Kaushikkar and Podyminogin additionally fails to teach damaging probes at feature locations outside any retrieved sub-array pattern.

The Examiner asserts that page 5090 of Podyminogin teaches this element because "Podyminogin et al. teach that the probes may be damaged due to cross-linking or a variety of other reasons" (Office Action, pg. 7, lines 5-6). Page 5090, col. 2, last ¶, lines 4-11 of Podyminogin is shown below for convenience.

> Immobilized cDNA arrays are commonly used for gene expression analysis (2), but synthetic oligodeoxynucleotides (ODNs) are increasingly being used (3,4) since structure, quality and hybridization performance are more easily controlled. Attachment of cDNA by UV or thermal crosslinking can give variable results due to probe damage or conformational restriction of the DNA strands near the multiple attachment points.

As is clear from above, Podyminogin is specifically drawn to reducing probe damage during array fabrication (i.e., due to cross-linking probes to the substrate) to improve performance. Podyminogin teaches probe damage is reduced by using semi-carbazide-coated glass arrays with oligodeoxynucleotides (ODNs) probes instead of conventional arrays with cDNA probes.

Therefore, Appellants submit that Podyminogin does not teach "damaging probes" to render them incapable of providing signal data as is claimed. Rather, upon reading the entire reference, it is apparent that Podyminogin teaches a method of reducing probe damage. In view of this, Appellants submit that Podyminogin's teachings would not lead one of skill in the art to arrive at the claimed invention in conjunction with the teachings of Kaushikkar. Indeed, Podyminogin would lead one of skill in the art away from the claimed invention because it specifically teaches reducing probe damage, not purposefully damaging probes on an array. Therefore, Podyminogin does not teach or suggest damaging probes at feature locations outside any retrieved sub-array pattern as currently claimed.

Consequently, the Appellants submit that because the cited references fail to teach or suggest at least three elements of the claims of this group, a *prima facie* case of obviousness has not been established. Accordingly, the Appellants respectfully request that this rejection be reversed.

Group VI: Claim 19

Claim 19 is drawn to the method according to Claim 17 and thus includes all the limitations of the claims of Group V. Therefore, Appellants submit that the claim of Group III is not obvious over Kaushikkar in view of Podyminogin for the reasons detailed above for the claims of Group V.

In addition, Claim 19 includes the element that the damaging comprises cleaving the probes from the feature locations outside any retrieved sub-array.

Appellants submit that the combined teachings of references additionally fail to teach or suggest this element and, as such, the claim is further distinguished over Kaushikkar in view of Podyminogin.

The Examiner cites page 5090 of Podyminogin for this element. However, the cited passage is completely silent on cleaving the probes from the feature locations to damage them. As such, nowhere does Podyminogin teach damaging the probes by cleaving.

Therefore, the Appellants contend that Kaushikkar in view of Podyminogin does not render Claim 19 obvious. In view of the above, the reversal of this rejection is respectfully requested.

III. Claims 34 and 64 are not obvious under 35 U.S.C. § 103(a) over Kaushikkar (US 2002/0024026) in view of Sandstrom (US 2005/0079603).

In the arguments set forth below, Appellants will argue the rejected claims in a single group.

Claims 34 and 64 are directed to the method according to Claim 1. Claim 34 additionally specifies that the array has been exposed to a sample obtained from an individual and that the sub-array pattern is retrieved using an identification of the individual; and Claim 64 specifies that the method further comprises masking feature locations outside of said sub-array pattern.

In making this rejection, the Examiner asserts that Kaushikkar's teaching of a system specifying scanning array area based on location data in combination with Sandstrom's spatial light modulator (i.e., for masking a microarray) and identification of an individual renders the claims obvious.

As Claims 34 and 64 depend from Claim 1, the claims include all the elements of the claims of Group I, including retrieving a sub-array using a test request that references the type of test to be performed. This elements is not taught by Kaushikkar for the reasons detailed above for the claims of Group I.

Kaushikkar fails to even suggest these elements. Kaushikkar fails to suggest retrieving a sub-array using a test request because the reference is mainly concerned with location data and is silent on modifying its array content file to one that references a type of test to be performed.

As Sandstrom is cited merely for its asserted teaching of a spatial light modulator and identification of an individual, it fails to remedy the fundamental deficiencies in Kaushikkar.

Therefore, the Appellants contend that Kaushikkar in view of Sandstrom does not render Claims 34 and 64 obvious. In view of the above, the reversal of this rejection is respectfully requested.

SUMMARY

I. Claims 1-13, 49, 50, 56, 57, 59-63 and 65-70 are not anticipated under 35 U.S.C. § 102(b) by Kaushikkar (US 2002/0024026) because Kaushikkar fails to teach retrieving a sub-array using a test request that references a type of test to be performed, as recited in the claims.

II. Claims 17-19 are not obvious under 35 U.S.C. § 103(a) over Kaushikkar (US 2002/0024026) in view of Podyminogin et al., (Nucleic Acids Research 29(24):5090-5098) because the combination of Kaushikkar and Podyminogin fails to teach or suggest: 1) retrieving a sub-array using a test request; and 2) rendering feature locations incapable of providing signal data, as recited in the claims.

III. Claims 34 and 64 are not obvious under 35 U.S.C. § 103(a) over Kaushikkar (US 2002/0024026) in view of Sandstrom (US 2005/0079603) because the combination of Kaushikkar and Sandstrom fails to teach or suggest retrieving a sub-array using a test request that references a type of test to be performed as recited in the claims.

Relief Requested

The Appellants respectfully request that all rejections of Claims 1-13, 17-19, 34, 49, 50, 56, 57, and 59-70 under 35 U.S.C. §§ 102 and 103 be reversed and that the application be remanded to the Examiner with instructions to issue a Notice of Allowance.

Respectfully submitted,

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CLAIMS APPENDIX

1. A method, comprising:

receiving a test request which uses a sub-array of a chemical array with probes at multiple feature locations, wherein said sub-array comprises less than all of said multiple feature locations of said chemical array, and wherein said test request references a type of test to be performed;

retrieving a pattern of locations of features that make up the sub-array from a memory using the test request, which memory carries said pattern for the sub-array;

exposing said array to a sample; and

reading said sub-array.

2. The method according to claim 1 wherein the memory carries multiple sub-array patterns for the array each of which is retrievable with a different test request.

3. The method according to claim 1 additionally comprising reading an array identifier associated with the chemical array unit, and wherein the sub-array pattern is retrieved from the memory using both the array identifier and the test request, which memory carries multiple sub-array patterns for each of multiple arrays each sub-array pattern retrievable with a different combination of array identifier and test request.

4. The method according to claim 3 wherein the array unit carries the array identifier.

5. The method according to claim 1 wherein after the array has been exposed to a sample, the method additionally comprising reading the chemical array and wherein signal data representative of binding of a sample component is not acquired and saved from feature locations outside any retrieved sub-array pattern.

6. The method according to claim 1 wherein after the array has been exposed to a sample, the method additionally comprising reading the chemical array and wherein one or more of: (a) signal data representative of binding of a sample component is acquired and saved from feature locations based on one or more retrieved sub-array patterns; or (b) a same signal processing method is applied to acquired signal data representative of binding of a sample component from feature locations based on one or more retrieved sub-array patterns.

7. The method according to claim 6 wherein the test request is associated with the array.

8. The method according to claim 7 wherein the array unit carries an array identifier and the test request is associated with the array identifier.

9. The method according to claim 6 additionally comprising: reading an array identifier associated with the chemical array unit, and wherein the sub-array pattern is retrieved from the memory using both the array identifier and test request, which memory carries multiple sub-array patterns for the array each retrievable with a different combination of array identifier and test request.

10. The method according to claim 9 wherein the array identifier and test request are associated with the array.

11. The method according to claim 7 wherein: multiple requests for tests associated with the array are read, each of which uses a different sub-array of the array; patterns of the sub-arrays are retrieved from memory using both the array identifier and the test requests, which memory carries multiple sub-array patterns each retrievable with a different combination of array identifier and test request.

12. The method according to claim 6 wherein the method comprises the acquiring and saving signal data representative of binding of a sample component from feature locations based on one or more retrieved sub-array patterns.

13. The method according to claim 12 wherein the method further comprises rendering feature locations outside any retrieved sub-array pattern incapable of providing signal data representative of binding of a sample component.

17. The method according to claim 13 wherein the rendering step comprises damaging probes at the feature locations outside any retrieved sub-array pattern.

18. The method according to claim 17 wherein the damaging comprises cross-linking the probes at the feature locations outside any retrieved sub-array.

19. The method according to claim 17 wherein the damaging comprises cleaving the probes from the feature locations outside any retrieved sub-array.

34. The method according to claim 1 wherein the array has been exposed to a sample obtained from an individual and wherein the sub-array pattern is retrieved also using an identification of the individual.

49. An apparatus for use with a chemical array unit having a chemical array with probes at multiple feature locations, comprising: an interrogating source; a detector to detect signal generated in response to the interrogating source; and a processor which causes the apparatus to execute a method of claim 1.

50. An apparatus for use with a chemical array unit having a chemical array with probes at multiple feature locations, comprising: a light source to illuminate array

feature locations with an interrogating light, which light source may or may not be the same as the light source of a deactivator; a detector to detect light emitted in response to the interrogating light; and a processor which causes the apparatus to execute a method of claim 2.

56. A computer program product comprising a computer readable medium carrying a computer program which when loaded into a computer executes a method of claim 1.

57. A computer program product comprising a computer readable medium carrying a computer program which when loaded into a computer executes a method of claim 6.

59. A method comprising retrieving a sub-array pattern of a chemical array from a memory using a test request, wherein said test request references a type of test to be performed, which sub-array pattern comprises a plurality of locations of features that make up said sub-array and said memory carries said sub-array pattern for the array which is retrievable with said test request.

60. The method according to claim 59 wherein the memory carries multiple sub-array patterns for the array each retrievable with a different test request.

61. The method according to claim 59 wherein the sub-array pattern is retrieved from the memory using both an array identifier and the test request, which memory carries multiple sub-array patterns for each of multiple arrays, each pattern retrievable with a different combination of array identifier and test request.

62. The method according to claim 61 wherein the array identifier and test request are received from a location remote from the location of the memory, and the

retrieved pattern of less than all the array feature locations is communicated to the remote location.

63. A computer program product comprising a computer readable medium carrying a computer program which when loaded into a computer executes a method of claim 59.

64. The method according to claim 1, wherein the method further comprises masking feature locations outside of said sub-array pattern.

65. The method according to claim 59, wherein said memory does not save acquired signal data for feature locations outside of said sub-array.

66. The method according to Claim 1, wherein said sub-array comprises a contiguous set of features.

67. The method according to Claim 1, wherein said sub-array comprises non-contiguous features.

68. The method according to Claim 1, wherein said chemical array comprises multiple more than one sub-array patterns.

69. The method according to Claim 68, wherein said more than one sub-array patterns overlap.

70. The method according to Claim 68, wherein said more than one sub-array patterns do not overlap.

Evidence Appendix

No evidence that qualifies under this heading has been submitted during the prosecution of this application, and as such it is left blank.

Related Proceedings Appendix

As stated in the *Related Appeals and Interferences* section above, there are no other appeals or interferences known to Appellants, the undersigned Appellants' representative, or the assignee to whom the inventors assigned their rights in the instant case, which would directly affect or be directly affected by, or have a bearing on the Board's decision in the instant appeal. As such this section is left blank.